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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/826,399
Filing Date: April 03, 2001
Appellant(s): SAYEED, ZULFIQUAR

Kevin M. Mason
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/31/2005 appealing from the Office action mailed April 21, 2005.

(1) *Real Party in* Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3)* Status *of Claims

The statement of the status of the claims contained in the brief is correct.

(4)* Status *of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

***(7)* Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

***(8)* Evidence Relied Upon**

6,735,422	Baldwin et al.	05-2004

6,614,855	Okamoto et al.	09-2003
6,532,358	Earls et al.	03-2003
5,790,514	Marchok et al.	08-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Earls et al. (US 6,532,358).

- With regard claim 1, Earls et al. discloses a communication system with a method for adjusting the gain of an IF amplifier, said method comprising the step of:

  monitoring (Fig.1 elements 26, 28, and 30, and column 3 lines 17-37) a gain adjustment of an RF amplifier (Fig.1 element 14 and column 3 lines 1-42) in said communication receiver (Fig.1 element 10); and

  adjusting said IF gain value (Fig.1 elements 22, 24, and 30 and column 3 lines 1-42) based on said monitored RF amplifier gain adjustment (Fig.1

elements 14, 22, 26, 28, and 30, Fig.3, and column 3 line 17 – column 4 line 4) by an amount approximately opposite to said RF gain value (Fig.1 elements 22 and 30 and column 3 line 1 – column 4 line 4).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Earls et al. (US 6,532,358) in view of Okamoto (US 6,614,855).

- With regard claim 2, Earls et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching that communication receiver is an OFDM communication receiver.

  However, Okamoto teaches that a receiver for receiving broadcasting signals with an OFDM communication receiver (Fig.2 elements 11-11, 17-20, 29, and 32) that has the same structure as that of Earls et al. disclosed.

  It is desirable to have a communication receiver with an OFDM communication scheme since it is well known in the art that the advantage of an OFDM communication system is to make more efficiently use of bandwidth by permitting the transmission of many system with less interference comparing to those of the

TDM/QPSK communication systems. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method taught by Okamoto in which, having an OFDM communication receiver in system, into Earls' communication system so as to make more efficiently use of bandwidth by permitting the transmission of many system with less interference so that the communication quality is improved.

- With regard claim 4, Earls et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching adjusting said IF gain value based on at least one signal energy measurement performed before (or after) a fast Fourier transform (FFT) stage in said receiver in order to maintain a desired set point if there is no RF gain adjustment.

However, Okamoto teaches that adjusting said IF gain value (Fig.2 element COA) based on at least one signal energy measurement (Fig.2 elements 31 and 32) performed before (or after) a fast Fourier transform (FFT) stage in said receiver (Fig.2 element 20) in order to maintain a desired set point if there is no RF gain adjustment (Fig.2 elements 17, 31, and 32, column 9 line 58 – column 10 element 42, and column 11 lines 14-27).

It is desirable to adjust said IF gain value based on at least one signal energy measurement performed before (or after) a fast Fourier transform (FFT) stage in said receiver in order to maintain a desired set point if there is no RF gain adjustment so as to reduce power consumption state in the periods other than the selected data receivable period so that the receiver lift time is extended

(column 10 lines 1-15). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by Okamoto in which, adjusting said IF gain value based on at least one signal energy measurement performed before (or after) a fast Fourier transform (FFT) stage in said receiver in order to maintain a desired set point, into Earls' receiver so as to reduce power consumption state in the periods other than the selected data receivable period so that the receiver lift time is extended.

- In regard claim 6, Earls et al. further discloses the step of adjusting said IF gain value in stepped increments (Fig.3 and column 3 lines 53-64) if a difference between said signal energy measurement and a corresponding pre-FFT threshold are within a predefined tolerance (Fig.3 and column 3 line 38 – column 4 line 5).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Earls et al. (US 6,532,358) in view of Marchok et al. (US 5,790,514).

- With regard claim 3, Earls et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching that communication receiver is a DMT communication receiver.

However, Marchok et al. teaches that a receiver for receiving broadcasting signals with a DMT communication receiver (Fig.7).

It is desirable to have a communication receiver with a DMT communication scheme since it is well known in the art that the advantage of a DMT communication system is to make more efficiently use of bandwidth by

permitting the transmission of many system with less interference comparing to those of the TDM/QPSK communication systems. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method taught by Marchok et al. in which, having a DMT communication receiver in system, into Earls' communication system so as to make more efficiently use of bandwidth by permitting the transmission of many system with less interference so that the communication quality is improved.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Earls et al. (US 6,532,358) and Okamoto (US 6,614,855) as applied to claim 4 above, and further in view of Baldwin et al. (US 6,735,422).

- With regard claim 9, Earls et al. and Okamoto discloses all of the subject matter as described in the above paragraph except for specifically teaching that a threshold for said signal energy measurement is established to prevent clipping.

  However, Baldwin et al. teaches that a threshold (Fig. 4 elements 201 and 297 and column 17 lines 56-67) for said signal energy measurement is established to prevent clipping (column 20 lines 54-67).

  It is desirable that a threshold for said signal energy measurement is established to prevent clipping in order to compensate the ADC gain and prevent the clipping caused by the overpower of the ADC (column 20 lines 54-67). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by Baldwin et al. in which, a threshold for said signal energy measurement is established to

prevent clipping, into Earls et al. and Okamotos' AGC circuit so as to prevent the clipping caused by the overpower of the ADC.

(10) Response to Argument

A. With respect to claims 1-3, the applicant group claims 1-3 together and limit the argument on Claim 1 only. The applicant makes the following arguments:

(1) The Applicant argues that Claim 1 requires "adjusting said IF gain value based on said monitored RF amplifier gain adjustment by an amount approximately opposite to said RF gain value." Thus, Earls et al. do not disclose or suggest adjusting an IF gain value based on a monitored RF amplifier gain adjustment by an amount approximately opposite to the RF gain value.

Response — The cited Earls' patent teaches an adjust RF amplifier or wideband amplifier (Fig.1 element 14 and column 2 line 66 – column 3 line 7), an IF amplifier (Fig.1 element 22), a RF amplifier gain detector or monitor (Fig.1 elements 26 and 28 and column 3 lines 17-37), an IF amplifier gain detector (Fig.1 element 24 and column 3 lines 26-37), and a gain monitor and gain controller (Fig.1 element 30 and column 3 lines 38-52). As admitted by the applicant, the Earls' gain control operation comprising three steps (see FIG. 3).

Regarding the first step (entitled "SET WIDEBAND GAIN"), Earls teaches that the controller 30 reads the output from the wideband detector 26, 28 (monitor) and sets a gain control value for the wideband (RF) variable gain input amplifier 14 in order to provide a nominal amplitude of the RF signal to the mixer

stage 18 (Col. 3, lines 38-42). This step teaches that the controller 30 monitor the wideband (RF) amplifier gain adjustment.

Regarding the second step (entitled "SET IF GAIN"), Earls teaches that the controller 30 reads the output from the IF detector 24 and sets a gain control value for the IF amplifier 22 to provide a maximum amplitude value for the IF signal to put it close to full scale for the analog-to-digital converter (A/D) in the IF detector (Col. 3, lines 43-47). This step teaches that the controller 30 monitor the IF amplifier gain adjustment.

Regarding the third step (entitled "RE-OPTIMIZE WB AND IF GAINS"), Earls teaches that the respective gains of the wideband (RF) and IF amplifiers may be re-optimized by ***increasing the IF gain by the specified dBm*** and ***decreasing the wideband (RF) gain*** (or ***increasing the RF gain by the specified dBm*** and ***decreasing the IF gain***) by the specified dBm based on the comparison (monitor) result of the RF amplifier gain and IF amplifier gain (Col. 3, lines 47-64) to a threshold value.

From the above explanation, Earls et al. clearly teaches that *based on the monitored current wideband (RF) amplifier gain (Fig.1 elements 26, 28, and 30, and column 3 lines 17-37) and current IF amplifier gain (Fig.1 elements 24 and 30 and column 3 lines 1-42), the controller 30 will calculate the difference and compare with a threshold to adjust IF amplifier gain (increasing) with an amount approximately opposite to the wideband (RF) gain (decreasing) or adjust RF amplifier gain (increasing) with an amount approximately opposite to the IF gain*

(decreasing) (Fig.1 elements 22 and 30 and column 3 line 1 – column 4 line 4 and Fig.3 step RE-OPTIMIZE WB AND IF GAINS).

i.e. The RF gain adjustment (*Fig.3 step RE-OPTIMIZE WB AND IF GAINS and column 3 lines 59-64*) is determined via the current RF gain detecting (monitoring) process (*Fig.1 elements 26, 28, and 30, and column 3 lines 17-37*) and current IF gain detecting (monitoring) process (*Fig.1 elements 24 and 30 and column 3 lines 1-42)* results and comparison process (*Fig.3 and column 3 lines 43-59)*. Based on the determined RF gain adjustment, adjusting the IF gain by an amount approximately opposite to the RF gain value (*Fig.3 step RE-OPTIMIZE WB AND IF GAINS and column 3 lines 59-64*). Thus, for the explanation addressed in the above paragraph, the rejection under 35 U.S.C. 102(e) with Earls' reference is adequate.

B. With respect to Claims 4, 6, and 9, the applicant limits the argument on Claim 4 only. The applicant makes the following arguments:

(1) The Applicant argues "Applicant notes that Okamoto, however, does not disclose or suggest adjusting an IF gain value based on at least one signal energy measurement performed before or after a fast Fourier transform (FFT) stage in a receiver in order to maintain a desired set point if there is no RF gain adjustment." as recited.

Response — The cited Okamoto's patent teaches the following – adjusting said IF gain value (Fig.2 element COA) based on at least one signal energy measurement (Fig.2 elements 31 and 32) performed before (or after) a fast

Fourier transform (FFT) stage in said receiver (Fig.2 element 20) in order to maintain a desired set point if there is no RF gain adjustment (Fig.2 elements 17, 31, and 32, column 9 line 58 – column 10 element 42, and column 11 lines 14-27).

Further explanation is shown as follows.

First, the operation controller 32 based on the measured input STM signal to generate the output signal COA to control both RF amplifier 12 and IF amplifier 17. Since the STM is a timing signal (clock or binary value 0 or 1) generated by timing generator 31, the STM signal measurement conducted by operation controller 32 is inherent a voltage or energy measurement (Fig.2 elements 17, 31, and 32, column 9 lines 11-35, and column 9 line 58 – column 10 element 42).

Second, the control signal COA from the operation controller 32 sets each of the RF amplifier 12 and the IF amplifier 17 in the reduced power consumption state. i.e. Each of the RF amplifier 12 and the IF amplifier 17 is cut off when the no data received period is selected (Fig.2 elements 17, 31, and 32, column 9 line 58 – column 10 element 42, and column 11 lines 14-27). Examiner considers that sets the IF amplifier 17 to the cutoff state is to maintain a desired set point (zero gain) and since there is no data received in the no data received period, inherently there is no RF gain adjustment required.

Third, the first and second steps explained in the above paragraph are performed before a fast Fourier transform (FFT) stage.

Thus, for the explanation addressed in the above paragraph, the rejection under 35 U.S.C. 103(a) with Earl s' reference in view of Okamoto's patent is adequate.

(11) **Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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